



Reg. No.:

Name:

University of Kerala

First Semester FYUGP Degree Examination, December 2025

Discipline Specific Core Course

CHEMISTRY

UK1DSCCHE100 - INORGANIC CHEMISTRY I

Academic Level: 100-199

2025-Admission onwards

Time: 1 Hour 30 Minutes(90 Mins.)

Max. Marks: 42

Part A. 6 Marks.Time:6 Minutes.(Cognitive Level:Remember(RE)/Understand(UN)) Objective Type. 1 Mark
Each.Answer all questions

Qn No.	Question	CL	CO
1	Identify the ion which undergoes oxidation during the redox reaction between ferrous sulphate and potassium dichromate.	RE	4
2	Minamata disease was caused by consumption of fish contaminated with	RE	3
3	Give an example for a molecule in which carbon atom is sp^2 hybridized.	UN	2
4	Indicate which observation from Rutherford's experiment you would cite as evidence for the presence of a small, dense nucleus.	UN	1
5	Give an example for a primary air pollutant and the secondary air pollutant derived from it.	UN	3
6	Round 8.956 to three significant figures.	UN	4

Part B.8 Marks.Time:24 Minutes.(Cognitive Level:Understand(UN)/Apply(AP))Short Answer. 2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	Apply Slater's rule for calculating the effective nuclear charge on the 2p electron of oxygen atom.	UN	1
8	H ₂ O is a liquid while H ₂ S is a gas. Give reason.	UN	2
9	During a celebration, an elderly person was coughing more than usual, and a pet dog was scared and hiding under the bed. Explain how the use of fireworks during such events can lead to these problems.	AP	3
10	Calculate the mass of NaOH required to prepare 1litre 0.5 M solution in water.	AP	4

Part C. 28 Marks.Time:60 Minutes (Cognitive Level:Apply(AP)/Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer.7 marks each.Answer all 4 Questions choosing among options * within each question

Qn No.	Question	CL	CO
11	<p>A) Explain the factors affecting electronegativity. Apply Mulliken's approach of electronegativity to calculate the electronegativity of fluorine. Given that the ionization enthalpy and electron gain enthalpy are 17.418 and 3.45 eV.</p> <p>OR B) 1.State the four quantum numbers and explain their significance with 2p electron an example. 2.Apply Pauli's exclusion principle to explain why the maximum number of electrons in an orbital is two.</p>	AP	1, 1
12	<p>A) Metals show exceptional electrical and thermal conductance. Also, they are malleable. Analyse these remarkable properties in the light of various theories of metallic bonding.</p> <p>OR B) Debate the hybridisation, geometry and bond angles of BeF₂, BF₃ and SF₆ molecules</p>	AN	2, 2
13	<p>A) Evaluate the contribution of pesticides, fertilizers, and plastics to soil pollution.</p> <p>OR B) Evaluate the long-term ecological and policy impacts of the Silent Valley Movement on forest conservation in India, highlighting its merits and demerits.</p>	EV	3, 3
14	<p>A) Hardness of water can be estimated by complexometric titration. Design a procedure for this experiment.</p> <p>OR B) Design an experiment to determine the concentration of an unknown hydrochloric acid (HCl) solution using a suitable primary standard. Include the chemicals, apparatus, principle of experiment and step-by-step procedure.</p>	CR	4, 4